

Gov. Doc.
Can.
M

Canada, Mines, Bureau of Explosives
" Division

CANADA
DEPARTMENT OF MINES

HON. CHARLES STEWART, MINISTER; CHARLES CAMSELL, DEPUTY MINISTER

EXPLOSIVES DIVISION

LT.-COL. G. OGLVIE, CHIEF INSPECTOR

ANNUAL REPORT

OF THE

EXPLOSIVES DIVISION

OF THE

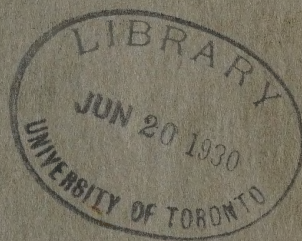
DEPARTMENT OF MINES

FOR THE CALENDAR YEAR

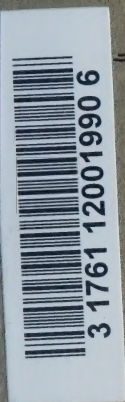
1929



OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1930



No. 27



CANADA
DEPARTMENT OF MINES
HON. CHARLES STEWART, MINISTER; CHARLES CAMSELL, DEPUTY MINISTER
EXPLOSIVES DIVISION
LT.-COL. G. OGILVIE, CHIEF INSPECTOR

ANNUAL REPORT
OF THE
EXPLOSIVES DIVISION
OF THE
DEPARTMENT OF MINES
FOR THE CALENDAR YEAR
1929




OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1930

No. 27

CONTENTS

	PAGE
REPORT OF CHIEF INSPECTOR.....	1
Staff.....	1
Manufacture of explosives.....	1
Accidents in factories.....	2
Magazines.....	2
Explosives found.....	3
Explosives condemned on inspection.....	3
Unlicensed premises.....	3
Importations.....	4
Authorization of explosives.....	4
Prosecutions.....	4
Accidents.....	5
APPENDICES—	
A. Factories licensed to manufacture explosives in 1929.....	8
B. Production of explosives in Canadian factories during the year 1929.....	8
C. Explosives imported into Canada, January 1 to December 31, 1929.....	9
D. Accidents from explosives during the calendar year 1929.....	10
E. Authorized explosives.....	14



Digitized by the Internet Archive
in 2025 with funding from
University of Toronto

ANNUAL REPORT
OF THE
EXPLOSIVES DIVISION OF THE DEPARTMENT OF MINES
FOR THE CALENDAR YEAR 1929

BY

Lt.-Col. G. Ogilvie, C.M.G.

The following report deals with the administration of the Explosives Act during the year ending December 31, 1929.

STAFF

By the sudden death of Mr. J. G. S. Hudson on August 3 the Division lost the services of an inspector who, from its inception, had its welfare at heart, and whose happy relations with those with whom he came in contact in the course of his duties did much to promote a good understanding of the aims of the regulations in the furtherance of public safety. Indeed his services were directed to this general cause many years prior to the formation of the Division, for he had taken an active part in the survey of the conditions as they were in the years 1908-1910, and in the conferences at that period which preceded legislative action. His loss was a personal one to members of the staff and the sympathetic references made to it by others, met with in the course of inspection work, gave added testimony to the regard in which he had been held.

The vacancy was filled by the appointment, on December 15, of Mr. M. C. Fletcher, A.R.T.C., F.I.C., Explosives Chemist on the staff of the division, to the position of Inspector of Explosives.

MANUFACTURE OF EXPLOSIVES

The factory of the Mexco Company at Parry Sound, although remaining under licence, was not operated during the year. The small fireworks factory of Mr. Dominico Ruffo, Cornwall, ceased operations at the end of 1928. At the commencement of the year a licence was granted to the MacDonald Metal Products Company, Limited, at Waterloo, P.Q., covering the operation of a factory built for the manufacture of caps for toy pistols. A list of the licensed factories for the year is given in Appendix A.

Inspectors of the division made 30 visits of inspection, and 7 were made by deputy inspectors of the Royal Canadian Mounted Police. The latter

are usually in the nature of supplementary visits to small fireworks factories to ensure that such action as may have been required by an inspector is taken. No serious irregularity had however to be dealt with.

The production of explosives, as gauged by that of high explosives and black powders (Appendix B, Classes I to IV), showed an increase of about 12½ per cent over that of 1928, and amounted to nearly 26,000 tons.

ACCIDENTS IN FACTORIES

The record of the year in manufacturing operations was not marred by any serious accident, nor of injury to personnel beyond two cases of minor burns.

An employee of the MacDonald Metal Products Company, Ltd., Waterloo, P.Q., suffered burns about the face from the explosion of dried composition on a stamp plate, which he was cleaning on the morning of May 2. His injuries were fortunately not of a serious nature and necessitated only seven days absence from work. The stamp plate is that used for transferring drops of composition to a sheet of paper, afterwards covered, dried, and cut to form toy pistol caps. It appeared that the man had neglected to wash the plate properly on the previous evening, and some remaining composition had dried on it. In this he observed a couple of broken whisk strands which he, improperly, endeavoured to remove by means of a nail, and in so doing caused the explosion of the composition.

A fire which broke out in a soda dry house, at James Island, B.C., was believed to have originated in the spontaneous ignition of some carbonaceous material, as bagging string, incited by the heat of the soda dryer, and then to have communicated to the conveyer belt and woodwork. An employee suffered very minor burns in an attempt to put out the fire with a fire extinguisher.

At the Dominion Cartridge Company's factory at Brownsburg, P.Q., a small fire, quickly extinguished, broke out in the railway fusee building. Priming composition, spilt on the floor from the priming bench, ignited and communicated to other combustible matter secreted in old flooring.

A small fire broke out in a "dope" house, in a container used for conveying non-explosive ingredients, or "dope," to a high explosive mixing house. It was most likely due to the spontaneous combustion of an oily rag, probably thrown into the container by painters who had been at work in the building earlier in the day. No damage was done.

To the passage of nitre cake down a chute passing through the wall of a nitric acid house, and to the heat so generated and transmitted to the wood work, was attributed an outbreak of fire in the wall. The damage done was very slight.

MAGAZINES

There were 330 magazines under licence at the end of the year, and in addition temporary magazine licences had been issued to cover the operation of 211. The total of 541 represents an increase of 50 over the number of licences for the previous year, and it is of interest to note that, neglecting the two years 1920, 1921 when, the Act being little known, users

of explosives had to be traced and instructed in its requirements, the number of licensed magazines has risen from 222 in 1922, which is in keeping with the continuous increase in the production and consumption of explosives.

No reports have been received of any accidents in connexion with the keeping of explosives in licensed magazines, but there are to record instances of magazines being broken into and explosives stolen. One substantially built magazine was so entered and twenty cases stolen. The other thefts committed were of relatively small quantities. These amounted to 265 pounds and a case of a thousand detonators from four magazines. In addition about 11 pounds stolen from another magazine were recovered, and an unsuccessful attempt was made to break into another magazine. Inspectors of the Division made 309 visits of inspection to magazines and 112 were made by deputy inspectors of the Royal Canadian Mounted Police. Assistance was also kindly rendered by the Commissioner of the British Columbia Provincial Police who arranged for the inspection of 10 magazines in outlying locations.

EXPLOSIVES FOUND

The Royal Canadian Mounted Police found and destroyed about 40 pounds of dynamite cached in the bush, and disposed also of a partly filled case, about 20 pounds, found near a place where construction work had been in progress. Six cases of old explosives found in an abandoned magazine were destroyed, also five cases which had been removed therefrom and recovered.

Certain small forgotten supplies were brought to light by children at play. These included a tin of detonators found in the open country, a few dynamite cartridges in the outskirts of a town, and a basket containing 20 dynamite cartridges under the floor of an old storehouse. The children wisely reported their findings to the police and the explosives were destroyed. One and a half dynamite cartridges, two detonators and some safety fuse, found in a disused truck in waste land where children were playing, were also destroyed. One old cartridge, of a brand never kept by him, was found by a magazine owner on his land.

EXPLOSIVES CONDEMNED ON INSPECTION

A total of 1,480 pounds of dynamite and 200 pounds of black blasting powder, distributed over 21 magazines or unlicensed premises, was found in unserviceable condition and destroyed.

UNLICENSED PREMISES

Inspectors of the Division made 679 inspections of unlicensed premises and deputy inspectors of the Royal Canadian Mounted Police about 2,400. But little difficulty is now experienced in regard to the proper keeping of explosives in unlicensed premises of a permanent character, as hardware stores. Minor irregularities in the conditions of storage usually require only to be pointed out and explained to be rectified. The keeping of records had proved irksome to some, but this year in no case had recourse

to be had to prosecution as a means of enforcing the regulations. Recommendations for improvement in methods of record keeping were not infrequent, but were well received.

The term "unlicensed premises" includes however places at which small quantities of explosives are kept by work parties. Such parties may be but a short time at any one place, and consequently may well escape inspection. The vigilance of members of the Royal Canadian Mounted Police goes far to overcome this difficulty—but even they cannot be ubiquitous.

There is too often a laxity in the observance, by work parties, of the essential safeguards as to keeping detonators and dynamite in separate locked receptacles, a laxity which may well make pilfering easy or lead to the finding of mislaid detonators and cartridges—and hence accidents. Where the operations are of brief duration, as in blasting foundations, opening drains, and the like, in cities, there is a difficulty in detecting irregularities, but the supervision here exercised by municipal authorities is frequently of great assistance in this matter.

IMPORTATIONS

The total quantity of explosives imported, arranged according to their classes and description, is given in Appendix C. The number of permits for importations issued were 629, and of special permits 41.

The rejection of Chinese fireworks presented for importation amounted to only 2 per cent. In the previous year this had amounted to 19 per cent. This great improvement is mainly attributable to the co-operation of the Royal Canadian Mounted Police, the Customs officials and the Dominion Analyst at Vancouver, who have maintained throughout a steady and expeditious examination of shipments arriving at that port.

AUTHORIZATION OF EXPLOSIVES

Samples of nine explosives were submitted for authorization, examined and accepted. Sixty-two varieties of fireworks were examined and forty-three authorized.

Check examinations were made of 253 samples taken from fireworks presented for importation, 14 of which were found not in accordance with the terms of importation permits.

PROSECUTIONS

The case of unlawful keeping of explosives referred to in last report as being subject of appeal, was dismissed on appeal.

Proceedings were taken in eight other cases for unlawful keeping of explosives, convictions being obtained in seven. Six were disposed of by the imposition of fines and one by suspended sentence. In all cases the violations of the regulations were committed by work parties or private users of explosives. In one the offence lay in exceeding the quantity of explosives prescribed by the licence for a temporary magazine.

The others afforded examples of negligent keeping of explosives. In two of these cases the danger to be apprehended was that of possible accident at the places of storage, in one an open box of dynamite being kept near a camp cook house, and in the other exposed dynamite, also detonators, in a foreman's tent. In four cases the failure to keep the explosives in security, as required by the regulations, was such as to facilitate pilfering, too frequently the prelude to accidents arising from playing with explosives, and possibly to their unlawful use. These applied in two cases to explosives used in road work, and in two to explosives held, without reasonable precaution, by private users.

The prosecution in which a conviction was not obtained, responsibility not being established as against the defendant, was for the unlawful keeping of explosives which had been left in a disused quarry. They were found, and accidentally exploded, by a child who was injured.

ACCIDENTS

In Appendix D is given a summary of the accidents which occurred during the year. Those, fortunately very minor, which occurred in the course of manufacture have already been dealt with. Those connected with the keeping or conveyance of explosives, elsewhere than in mines or in railway transportation, also come under the control of the Explosives Act. It has been seldom that any of consequence have come under this heading but this year, in the course of the investigation made by the Provincial Fire Department concerned, into the circumstances attending a fire in which four lives were lost and seven persons injured, it transpired that three dynamite cartridges had been in the building.

The part played by the explosives present in contributing to the disaster is problematical. The fire appears to have originated in the spontaneous ignition of oil-soaked wood blocks in the basement of a double dwelling house, wherein were also stored paints, oils, and, in a pail, gasoline for use in cleaning.

In another part of the basement, and separated by a wooden partition, were three dynamite cartridges on a shelf under the wooden stairway. The explosion of these would be insufficient to account for the damage done by explosion. The circumstances point to an explosion of gasoline vapour which may have been induced by that of the dynamite, although it is at least equally probable that the gasoline explosion was a direct sequel to the fire in the compartment of the cellar in which the gasoline was kept, and that the explosion of the dynamite followed. Be that as it may, the disaster affords an all too tragic example of dangers of storing materials liable to spontaneous ignition with substances of explosive properties.

Most of the accidents in use fall under headings which, in a general way, indicate their causes. Without giving these accidents in detail, it may be of interest to refer to some which furnish examples of the more common types or in which some unusual features are to be observed. "Failing to get away from the shot hole," "not taking proper cover," "projected debris" and "returning too soon to shot hole" cover the majority, and while pointing to certain differences in the attendant cir-

cumstances, yet are of a related nature, being particularly suggestive of a class of hazard too often lightly regarded even by men of long and fortunate experience. Impatience of the delay which caution would demand before investigating a presumed misfire frequently leads to disaster. It is not implied that all such accidents are due to recklessness—they occur when apparently all reasonable precautions have been taken—but even so, the vagaries of projected debris, the possible combination of circumstances which may bring about an abnormal effect, or a delayed shot, afford ample justification for taking that extra delay, or extra precaution, which may mean so much. It is often very difficult to tell with assurance whether all of a round of shots have fired. Delay in returning to the scene of operation is the only sure safeguard. One case occurred where after the men had returned, fumes were observed issuing from a shot hole—the alarm was given but too late, and one man was killed and two men injured. What caused the delayed explosion can only be conjectured, but it is probable the charge must have been ignited, although not detonated, by the electric detonator, and burned in part until the heat developed exploded the remainder.

Occasionally the sufferers are others than the workmen concerned, as happened when a party of motorists, who had received no warning of blasting operations being in progress in the vicinity of the highway, sustained injuries, one young woman losing an eye, from projected debris.

Failure to get away from the shot hole is not infrequently the outcome of unexpected difficulties or interruptions, encountered in starting a round of shots, and the firer not fully realizing the encroachment so made on the time he has allowed for the operation.

The explosion of a few sticks of dynamite involved in a fire in a chicken house, and the explosion, by which one man was injured, of three sticks in the open when accidentally ignited by sparks from a workman's tools, are interesting as affording examples, of which there have been many others, of the fact that a dynamite cartridge cannot be relied upon to merely burn when ignited in the open—despite the miners' old trick, sometimes indulged in, of lighting a cartridge and holding it candlewise.

A small cache of dynamite, caught in a bush fire, also exploded. On the other hand fortune distinctly smiled on the miner who, apparently by ashes from his pipe, set fire to the two or three cases of dynamite stored in a small magazine. They burned without explosion.

Under "lighting fuse before inserting charge" are recorded three accidents where the victims had lit the fuse of a primed cartridge preparatory to throwing it on the ice, but which exploded in the hand. In one case, the man was killed, in the second, the man died from his injuries and in the third, suffered the loss of a hand and eye which rendered him totally blind, he having lost the other in the war. A like accident overtook a miner in whose hand a primed cartridge, of which he had lit the fuse, exploded. An employee on road work, treating a short fused charge in the same way, had part of his hand blown off and lost the sight of both eyes.

Among the accidents in use, and included under the heading "Various" is one whereby a man was killed by the explosion of about 35 pounds of dynamite which, with detonators, he was removing from a cache for use

in blasting holes for telegraph poles. There were no witnesses to the accident nor evidence to indicate the most probable cause of the explosion.

Under the same classification, but in "Mines," is included one by which 14 miners were injured, fortunately not seriously. This was caused by the ignition of gas on firing a small charge in loose coal to displace a temporary wooden retaining structure or "battery."

Some explosives which had apparently been left, and forgotten, at the side of a rock tunnel some weeks previously, were struck and exploded when the tunnel was being cleared out. Two men were killed and three others injured.

Another coal mine accident of an uncommon character, was the sequel to irregular action on the part of a miner, although not in relation to shot firing. He had improvised, for temporary convenience, an extension to a signal circuit by attaching to the signal wire a disused piece of shot firing cable, and left it so attached at the end of the shift. The next morning a man who had completed charging a hole, under supervision of the fire boss, picked up the signal wire extension thinking it was the shot-firing cable and connected it with his shot, which was so fired. He was injured in the face and eyes.

An explosion which occurred in a ship heading for a Canadian port is of interest although not included in the summary. A fire, starting in the engine room, gained control and reached a cargo of 40 cases of dynamite and 100 drums of gasoline. An explosion followed and the ship was destroyed, but, a timely abandonment having been made, the crew escaped.

The nature and circumstances of the miscellaneous accidents are briefly given in Appendix D. The casualties arising from playing with detonators and other explosives, amounted to 2 deaths and 51 persons injured. This is a welcome reduction on the corresponding figures for 1928, 7 deaths and 80 injured, but still forms a sadly large contribution to what must be regarded as avoidable accidents. It is however an indication that the cautions given in schools, and the continual efforts on the part of the Royal Canadian Mounted Police in checking careless keeping of explosives, in investigating accidents, and in the giving of special cautions when their investigations point to the possibility of explosives being found, may not have been without avail.

A few accidents with fireworks are entered under the heading "playing with explosives." There is little doubt but that there are many such, mostly minor, accidents which are not recorded in the press, and of which reports are not obtained.

Outbreaks of fire on the 24th of May, and other fête days, caused by the discharge of fireworks, are usually promptly checked by the activities of city fire departments, but one case was observed which caused the destruction of a dwelling house occupied by two families. As examples of the malicious use of fireworks may be cited the destruction of contents of mail box into which a lighted firecracker had been put; the injury to a woman, and the outbreak of fire in her store into which boys had thrown firecrackers; and a fire causing damage to the value of \$700 started in another store by a youth who applied the glowing end of his cigarette to some of the fireworks exposed for display.

APPENDIX A

Factories Licensed to Manufacture Explosives in 1929

Owner	Location of factory	General nature of product	Remarks
Canadian Explosives, Ltd.....	Belœil, P.Q.....	Blasting explosives, black powders, propellants.	
Canadian Explosives, Ltd.....	James Island, B.C..	Blasting explosives, black powders.	
Canadian Explosives, Ltd.....	Nobel, Ont.....	Blasting explosives.	
North Star Explosives Co., Ltd.	Prescott, Ont.....	Fulminate of mercury...	Operation intermittent.
Mexco Co.....	Parry Sound, Ont...	Blasting explosives.....	Closed.
Dominion Cartridge Co., Ltd.	Brownsburg, P.Q...	Ammunition, detonators, etc.	
Canadian Safety Fuse Co.....	Brownsburg, P.Q...	Safety fuse.	
T. W. Hand Fireworks Co., Ltd.	Hamilton, Ont.....	Fireworks.	
Toronto Fireworks Co.....	Toronto, Ont.....	Fireworks.	
Dominion Fireworks Manufacturing Co.	Dixie, Ont.....	Fireworks.	
B. Marroni.....	St. Pierre, P.Q.....	Fireworks.....	Operation intermittent.
MacDonald Metal Products Co.	Waterloo, P.Q.....	Toy pistol caps.	

APPENDIX B

Production of Explosives in Canadian Factories during the Year 1929

	Quantity
Class I. Gunpowder.....	408,576 lb.
" II. Nitrate mixtures.....	1,218,550 "
" III. Nitro-compounds—	
Division 1.....	50,169,112 "
" V. Fulminates—	
Division 1.....	62,356 "
" VI. *Ammunition—	
Division 1—	
Safety cartridges.....	101,319,746 "
Safety fuse.....	Output of one factory.
Railway torpedoes.....	Output of one factory.
Percussion caps.....	Output of one factory.
Division 3—	
Detonators and electric detonators.....	Output of one factory.
" VII. Fireworks—	
Division 2.....	(approx.) \$ 270,000

* Exclusive of artillery ammunition but includes small arms ammunition made in Government factories.

APPENDIX C

Explosives Imported into Canada January 1 to December 31, 1929

Class	Division	Description	Quantity
I		Gunpowder.....	232 lb.
II		Nitrate mixtures.....	3,200 "
III	1	Mixtures containing liquid nitro-compounds.....	24,183 "
	2	Nitro-compounds:—	
		(a) Propellants.....	136,635 "
		(b) For use in explosives factories.....	116,867 "
		(c) For other manufacturing purposes.....	1,030,325 "
V	1	Fulminates.....	26,400 "
VI	1	Percussion caps.....	5,000
		Safety fuse.....	138,822 ft.
	2	Miner's squibs.....	600
		Detonating fuse.....	310,048 ft.
	3	Detonators and electric detonators.....	5,150
VII	2	Manufactured fireworks.....	528,300 lb.

APPENDIX D Accidents from Explosives during the Calendar Year 1929

Circumstances or Cause	In Mines and Quarries			Elsewhere			Total		
	Number of			Number of			Number of		
	Accidents	Killed	Injured	Accidents	Killed	Injured	Accidents	Killed	Injured
.. Manufacture*	.....	.....	.....	7	.....	2	7	.....	2
II. Keeping.....	1	.....	.....	1	4	7	2	4	7
III. Conveyance (other than by railway).....	1	.....	1	.....	.....	.....	1	.....	1
Total, Manufacture, Keeping, Conveyance	2	.....	1	8††	4	9	10	4	10
IV. Use and Miscellaneous—									
Shot Firing—									
(a) Prematures, and failing to get away from shot hole.....	11	8	9	14	6	11	25	14	20
(b) Firing by electricity when persons are at the shot hole.....	.....	.....	.....	1	.....	1	1	.....	1
(c) Not taking proper cover.....	14	8	9	9	2	10	23	10	19
(d) Projected debris.....	12	1	11	18	8	10	30	9	21
(e) Hangfires, and returning too soon to shot hole.....	8	4	7	16	6	12	24	10	19
(f) Tampering with misfired shots.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
(g) Ramming or stemming the charge.....	2	.....	2	2	.....	2	4	.....	4
(h) Sparks, flame, etc.....	.....	.....	.....	1	.....	1	1	.....	1
(i) Boring into unexploded charges.....	8	4	8	.....	.....	.....	8	4	8
(j) Striking unexploded charge in removing debris.....	1	.....	1	2	1	4	3	1	5
(k) Preparing charge.....	2	1	4	5	3	4	7	4	8
(l) Lighting fuse before inserting charge.....	1	.....	1	4	2	2	5	2	3
(m) Fumes.....	.....	.....	.....	1	1	.....	1	1	.....
(n) Socketing.....	.....	.....	.....	2	.....	.....	2	.....	2
(o) Various.....	5	3	19	3	1	2	8	4	21
(p) Thawing.....	1	1	3	.....	.....	.....	1	1	3
†Miscellaneous—									
(a) Playing with detonators.....	.....	.....	.....	26	2	32	26	2	32
(b) Playing with other explosives.....	.....	.....	.....	25	.....	19	25	.....	19
(c) Various.....	1	.....	1	12	3	14	13	3	15
Total Use and Miscellaneous.....	66	30	75	141	35	126	207	65	201
Total all Circumstances.....	68	30	76	149	39	135	217	69	211

*Circumstances are given in text of report.

†Circumstances are given on next page.
††Except for these the accidents given in this table occurred in circumstances not directly controlled by the Act.

APPENDIX D—Continued

Playing with Detonators

Cause of Accident	Killed	Injured
Boy, age 13, found a box of detonators which had been left in a garage by the previous owners. He applied a match to one. He lost thumb and two fingers of left hand by the explosion.....		1
Boy, age 9, placed a detonator on the kitchen stove. It exploded. His hand was badly mangled and had to be amputated.....		1
Boy, age 15, found an electric detonator and was experimenting with it on an automobile battery. It exploded. He received injuries to arms, face and body, and lost his left eye.....		1
Boy, age 13, was given a detonator by his mother, who found it in cleaning up the house into which she had just moved. He exploded it by picking composition with a knife. His face was cut and his left hand badly torn.		1
Boy, age 12, given a detonator by a companion, placed it on kitchen stove. He lost three fingers and thumb by the explosion. His young sister, age 4, was also burned about the face and arms.....		2
Boy, age 7, while playing with other children found a few detonators. He exploded one by striking it with a rock. His right eye was injured.....		1
Boy, age 14, picked up, in school grounds, what he thought to be an empty cartridge case. He applied a match, there was an explosion. He lost three fingers and thumb of right hand.....		1
Boy, age 7, found a detonator and carried it around with him for several days. While playing with it he hit it with a stone. It exploded, lacerating his right hand badly.....		1
Boy, age 12, found a detonator in his father's shed. He applied a match to it. He lost two fingers and thumb of his right hand by the explosion.....		1
Youth, age 17, was given a detonator by a companion. It exploded while he was playing with it. He lost two fingers and thumb.....		1
Boy, age 10, received terrible wounds in the abdomen by the explosion of a detonator picked up on the roadway.....		1
Boys obtained a box of detonators from unknown source, attempted to open it by striking with a chisel. By the explosion which followed one lad was killed, 4 others injured.....	1	4
Two children, ages 8 and 4, found old pail of varnish in which were embedded about a dozen detonators in an outhouse of their home. They tried to loosen the detonators by striking the pail against a wagon and so exploded them. Both children badly cut about arms, face, and body by projected metal.....		2
Boy, age 12, was given detonator by a companion and struck it with a hammer. It exploded, injuring him about hands, face, and body.....		1
Boy, age 16, while working at desk with construction company picked up a detonator and tried to remove composition. Explosion followed. Three fingers of left hand were lacerated and thumb of right hand had to be amputated.....		1
Boy, age 10, placed a detonator on a stove. It exploded. Three fingers of his hand were blown off.....		1
Man found a detonator in his yard. Not knowing its properties applied his cigar lighter to the open end. He lost three fingers of right hand and his right eye.....		1
Boy, age 12, exploded a detonator he had picked up on a farm. He lost two fingers and a thumb of one hand.....		1
Boy, age 13, tried to force a detonator into a 22 R.F. rifle barrel. It exploded. The boy died from injuries.....	1	
Three boys helping in a removal found box of detonators in an old unlocked safe. One applied a match to one of the detonators. He lost three fingers and one eye. The other two boys also received lesser injuries...		3
Boy, age 10, was given a detonator by a companion in school. He picked the composition with a pin and lost a thumb and several fingers by the explosion.....		1

APPENDIX D—*Continued*

Playing with Detonators

Cause of Accident	Killed	Injured
Boy, age 10, found four detonators near school grounds. Juggling with two in his right hand one exploded inflicting severe cuts. It is believed he threw the others into a waste paper basket as there were two explosions in furnace next day when waste paper was being destroyed.....		1
Boy, age 11, exploded a detonator picked up near building being demolished. He lost two fingers and a thumb.....		1
Boy, age 14, entered an empty cabin with companions. He found a box containing detonators. He struck one with a stone and lost sight of both eyes by the explosion.....		1
Boy, age 12, found a detonator in an old tool chest in barn. While playing with it it exploded. His left hand was injured necessitating amputation of two fingers and thumb. His eye was also injured.....		1
Boy, age 11, found two detonators in an outbuilding of farm and accidentally exploded them while playing. He lost one eye and left hand, as well as sustaining severe injuries to arms, face, and chest.....		1
	2	32

APPENDIX D—Concluded

Playing with Explosives.

Cause of Accident	Killed	Injured
<i>Dynamite—</i>		
Boy, age 10, found sack containing fuse, detonators and dynamite belonging to a road gang working nearby. He attached fused detonator to stick of dynamite and lit fuse intending to throw it before explosion. It exploded in his hand. He lost right hand and is permanently blind.....		1
<i>Small Arms Ammunition—</i>		
Boy, age 13, suffered slight facial cuts and burns when a rifle cartridge exploded while he was playing with it.....		1
Boy, age 16, loaded toy pistol with black powder and fired a cap into it. The pistol burst. He lost two fingers and was severely injured about the legs.....		1
Boy, age 8, placed a shotgun cartridge on kitchen stove. It exploded. He was injured by flying shot about the arms, face and legs.....		1
Boy, age 16, extracted powder from shotshells and applied a light. He was severely burned by the flash from the powder.....		1
Boy, age 13, found old D.B. shotgun minus the stock. Extracted the powder from two shot shells and placed it in one barrel, the muzzle being embedded in the ground. He then placed another shot shell in the breech and fired it. He lost thumb and two fingers of right hand by the explosion.....		1
<i>Powders—</i>		
Boy, age 11, touched a match to a can of powder which exploded. He received burns about face and hands. Wearing glasses protected his eyes.....		1
Boy, age 12, was playing with a bottle of flashlight powder which exploded. He received severe injuries to face and hands.....		1
Boy, age 14, pounding chlorate of potash into a hole in a cement block when it exploded. He lost one finger and thumb of his right hand..		1
<i>Firecrackers—</i>		
Message boy was burned in face by firecracker thrown at him.....		1
Girl broke a firecracker, ignited composition and sustained burns.....		1
Firecrackers exploded in boys pocket inflicting severe burns.....		1
Boy threw firecrackers into shop. One set fire to woman's hair. She ran out for assistance and in her absence fire started in shop, damage \$1,000.....		1
Three accidents were reported arising from boys picking up fireworks, already ignited, which exploded in the hand, and in each case caused injury (not permanent) to an eye. Other three, cause unknown, resulted in burns on the face.....		6
Firecrackers ignited and thrown into mail box destroy letters.		
Boy entered store where firecrackers were on display. He touched his cigarette to one causing explosion and fire, damage \$700.		
		19

APPENDIX E

Authorized Explosives

Explosives manufactured by Canadian firms as hereunder detailed:—

Burrowite Explosives, Ltd.

Burrowites Nos. 1, 2, and 3.

Canadian Explosives, Ltd.

Polar dynamite—25, 30, 35, 40, 50, and 60 per cent.

Polar dynamite, mining—35, 40, and 50 per cent.

Polar ammonia dynamite—20, 25, 30, 35, 40, 50, 60 per cent and "F."

Polar ammonia dynamite, mining—20, 25, 30, 35, 40, 50, 55, and 60 per cent.

Polar gelatinized dynamite—50, 60, 65, 70, and 75 per cent.

Polar forcite gelatin—30, 35, 40, 50, 60, 75, and 80 per cent.

Polar forcite gelatin—Diamond—30, 35, 40, 50, 60, 75, and 80 per cent.

Polar gelatin dynamite—30, 35, 40, 50, 60, 75, and 80 per cent.

Special dynamites—No. 1.

Coal mining explosives.

Polar Monobel Nos. 1, 3, 4, 6, and 12.

Miners' Friend No. 9.

Coalite G.

Polar CXL-ite No. 2.

Polar stumping powders No. 1 and extra.

S.N.G.

Export gelignites—42, 50, 51, 58, and 62 per cent.

Samsonite—50 and 60 per cent.

Safety fuse lighters.

Signal bombs.

Cordite.

Black blasting powders.

Black powder pellets.

Gunpowder.

Sporting powders.

Safety fuse powder.

Canadian Safety Fuse Co., Ltd.

Safety fuse—"Clover" brand.

Safety fuse—"Black Clover" brand.

Safety fuse—"Beaver" brand.

Safety fuse—"White Jacket" brand.

Safety fuse—"Crown" brand.

Safety fuse—"Moose" brand.

Dominion Cartridge Co., Ltd.

Ammunition.

Detonators.

Percussion caps.

Railway torpedoes.

Electric detonators.

Railway fuses.

Mexco Ltd.

Klorex, Nos. 1 and 2.

North Star Explosives Co., Ltd.

Fulminate of mercury.

All explosives on the British authorized list are provisionally authorized in Canada, and in addition, those manufactured by the following firms, as detailed below:—

Aetna Explosives Co., Inc.

Standard dynamite L.F.—15, 20, 25, 27, 30, 33, 35, 40, 45, 50, and 60 per cent.

Straight dynamite—15, 20, 25, 27, 30, 33, 35, 40, 45, 50, and 60 per cent.

Keystone standard gelatin—40, 60, and 75 per cent.

Stumping powders—20 and 30 per cent.

APPENDIX E—Continued**Authorized Explosives**

- American Glycerine Co.
 - Nitroglycerine.
- Atlas Powder Co.
 - Electric blasting caps, Nos. 6, 7, and 8.
 - Blasting caps, Nos. 6, 7, and 8.
 - Nitrocellulose.
 - Trinitrotoluene.
- California Cap Co.
 - Detonators.
- Dunmore National Chemical Co.
 - Regina Stumping powder Nos. 1 and 2.
 - Regina Rock powder Nos. 1 and 2.
- E. I. Dupont de Nemours & Company, Inc.
 - Dupont bulk rifle powders (Nos. 80, 90, 91, 92) Rifle No. 1 Schuetzen.
 - Dupont smokeless shotgun powder.
 - Dupont pistol powders Nos. 3 and 5.
 - Dupont sporting rifle powders Nos. 95, 96, and 93.
 - Dupont military rifle powders (M.R. No. 20-23) (Nos. 10, 21, 22, 30, 40, and 50).
 - Dupont gallery rifle powder No. 75.
 - Dupont Schultze smokeless shotgun powder.
 - Ballistite smokeless shotgun powder.
 - Improved military rifle powders Nos. 13, 15, 15½, 16, 17, 17½, 18, 23, 25, and 25½.
 - Dupont dense smokeless shotgun powder.
 - Fulminate of mercury.
 - Guncotton.
 - Trinitrotoluene.
 - Dynamite and blasting gelatin.
 - Agritol.
- Ensign-Bickford Co.
 - Corbeau-Bickford fuse.
- Hercules Powder Co.
 - Bullseye revolver powder.
 - Infalible smokeless shotgun powder.
 - Dynamite and blasting gelatin.
- Illinois Powder Manufacturing Co.
 - Ammonia dynamite—40 and 60 per cent.
 - Powertol No. 1 and No. 3.
- Independent Torpedo Co.
 - Nitroglycerine.
- Puget Sound and Alaska Powder Co.
 - Gelatin dynamite—25, 30, 35, 40, and 60 per cent.
 - Dynamite, L.F.—20, 30, 40, and 60 per cent.
- United Railway Signal Corporation.
 - Railway torpedoes.
- Western Cartridge Co.
 - Detonators.
- Brucker & Zinke.
 - Safety fuse—"Globe" brand.
- Fireworks as manufactured by the following Canadian makers, namely:—
 - T. W. Hand Co., Ltd.
 - Toronto Fireworks Co., Ltd.
 - Dominion Fireworks Manufacturing Co.
 - Berardo Marroni.
 - MacDonald Metal Products Company, Ltd.

APPENDIX E—Concluded**Authorized Explosives**

Certain fireworks manufactured by the following foreign makers, namely:

Rochester Fireworks Company.
 M. Backes Sons, Inc.
 Hitt Fireworks Co., Inc.
 A. Jedel.
 Kilgore Manufacturing Co.
 National Fireworks, Inc.
 Victory Sparkler Co.
 Essex Specialty Co.
 Edwards Co.
 Federal Buster Corporation.
 Los Angeles Fireworks Co.
 Geb. Weinrich.
 Central Railway Signal Co.
 Fred. Wicke.
 Ying Shing Loong.
 M. Wagner.
 J. F. Eisfeld.
 International Fireworks Co.
 Edmiston Manufacturing Co.
 Adrian and Rohde.
 Hamburg-Bremer Handelgesellschaft.
 A. G. für Anilinfabrikation.
 Wilhelm Fischer.
 Potts Fireworks Display Co.
 Antonelli Fireworks Co.
 Safety Automatic Toy Co.
 American Fireworks Co.
 Blumberg & Co.
 Standard Railway Fusee Corp.
 Unexcelled Manufacturing Co., Inc.
 H. Nicolaus & Co.
 Continental Fireworks Manufacturing Co.

Also Chinese firecrackers with gunpowder composition and not exceeding 4 inches in length and nine-sixteenth inch in diameter and such other varieties the authorization of which has been specially notified to the parties immediately concerned.

